DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/22/2011 has been entered.

Response to Arguments

2. Applicant's arguments filed 08/22/2011 have been fully considered but they are not persuasive.

Regarding the Applicant's arguments that:

"*The Office Action at page 5, lines 3-6 acknowledges that Ranta-Aho et al. lacks any disclosure of transmitting from a scheduling base station to another base station information on the applicability of allocated maximum amount ofuplink resources wherein scheduling is based on the information received from the scheduling base station.*

The Office Action at page 5, lines 6 et seq. relies on Tiedemann et al. as allegedly curing the above-noted deficiency of Ranta-Aho et al.

However, it is noted that Tiedemann et al. merely disclose that BS 704 and BS 706 communicate with one another regarding coupled toad indicator 710 and expected coupled load 712, and BS 706 manages uplink transmissions of another MS served by

BS 706 by using expected available capacity determined based on expected coupled load 7 t2 received from BS 704. Tiedemann et al.'s teaching of communication of coupled load information among base stations would never have suggested to a person skilled in the art to modify Ranta-Aho et al.'s system such that the maximum allowed rate of uplink would be transmitted by one Node B to another Node B to assist that other Node B in scheduling another MS. Further, Tiedemann does not disclose that a base station sends scheduled uplink resource information to another base station, but merely coupled toad information. Tiedemann et al.'s teaching of communication of load information among base stations would not suggest a scheduling base station sharing among base stations information relating to a particular UE's maximum allowed rate of uplink, as in the Applicants' claimed invention.

More particularly, while paragraphs [0040] to [0043] of Tiedemann et al. appear to indicate that the "coupled loads" may be indeed provided from the non-serving base stations to the serving base station for calculating the "expected coupled load," as stated in paragraph [0041] of Tiedemann et al. the "coupled toad" may indicate the energy-per-chip-to-noise-plus- interference ratio (Ecp/Nt), where Ecp represents the energy per pilot signal chip or the speed of a mobile station as indicated in paragraph [0040].

Hence, in comparing Tiedemann et al. to the subject matter as recited in the Applicants' claims as amended herein, the "coupled load" or "estimated coupled load" is not comparable to the "amount of information" allocated to an individual user equipment as in the Applciants' claimed invention. Neither the speed of a mobile station or the

energy-per-chip-to-noise-plus- interference ratio (i.e. a ratio indicative of the interference) yields the actual amount of resource that has been allocated to the respective mobile station. Hence, even if the teachings of Rantha- Aho et al. and Tiedemann et al. were combined, the result would fail to teach or suggest the instant claimed subject matter of "scheduling information for the mobile terminal indicative of an maximum amount of uplink resources allocated to the mobile terminal" and "transmitting ... the scheduling information to at least one other base station of said plurality of base stations ...." (see pages 13-15 of the remarks); the examiner respectfully disagrees.

RANTA-AHO discloses transmitting scheduling information to at least one other base station of said plurality of base stations to inform the at least one other base station on the mobile terminal's allocated maximum amount of uplink resources for uplink data transmissions (see paragraph 13, 14, 16; during soft handover, uplink data rate is of mobile terminal is transmitted to the Node B from the mobile terminal). RANTA-AHO fails to disclose wherein the transmission is from the scheduling base station. TEIDEMAN discloses transmission of scheduling information to at least one other base station from the scheduling base station (paragraph 16, 19, 21, 22; serving base station calculates **an expected coupled load at the non-serving base station based on the coupled load indicator and a mobile station transmission parameter such as a scheduled transmission data rate. The expected coupled load is forwarded to the non-serving base station**). As described, TEIDEMAN transmits to non-serving base stations scheduling information (i.e. expected coupled load based on

mobile station transmission parameters to a non-serving base station). Therefore, the combination of RANTA-AHO and TEIDEMAN disclose the limitation as claimed.

It is further noted that the Applicant has not traversed the Official Notice statement of the previous Office Action and therefore, the use of enhanced uplink dedicated channels within a wireless communication system as stated in the previous Office Action is taken to be admitted prior art. See MPEP 2144.03.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 38-41,44,45,48-54,59, 61-63 are rejected under 35 U.S.C. 103(a) as being unpatentable over RANTA-AHO et al (US 2005/0048975) in view of TIEDEMANN et al (US 2005/0037771 A1).

Regarding claim 38, RANTA-AHO discloses a method for communicating information relating to the scheduling of uplink data transmissions, wherein a mobile terminal transmits uplink data via a channel to a plurality of base stations [**Node B's**] during soft handover of the mobile terminal [**UE device**] in a mobile communication system, and wherein at least one scheduling base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover (abstract; paragraph 4; active node B provides scheduling of uplink data rate to the UE), the method comprising: determining, at the at least one scheduling base station of said plurality of base stations, scheduling information for the mobile terminal indicative of a

maximum amount of uplink resources allocated to the mobile terminal for scheduled uplink data transmission on the channel (paragraph 13, 14; serving NodeB includes a pointer indicating maximum uplink data rate. During soft handover, uplink connection established for a plurality of nodes and therefore include a plurality of processes), transmitting scheduling information to at least one other base station of said plurality of base stations to inform the at least one other base station on the mobile terminal's allocated maximum amount of uplink resources for uplink data transmissions (see paragraph 13, 14, 16; during soft handover, uplink data rate is of mobile terminal is transmitted to the Node B from the mobile terminal by updating uplink data rate of target Node B including synchronization of pointer in UE and target Node B), and scheduling, by the at least one other base station (paragraph 16, 19, 21; uplink resources are scheduled to the UE based on determined maximum uplink data rate). However, RANTA-AHO does not expressly disclose transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations; and wherein the scheduling is based on the information received from the scheduling base station. In a similar field of endeavor, TIEDEMANN discloses transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations (paragraph 16, 19, 21, 22; serving base station calculates an expected coupled load at the non-serving base station based on the coupled load indicator and a mobile station transmission parameter such as a scheduled transmission data rate. The expected coupled load is forwarded to the non-serving base station), and wherein the scheduling is based on the information received

from the scheduling base station (paragraph 31, 42, 93, 96; non serving base station schedules a plurality of mobile stations according to an expected load based on determined reverse link resources of mobile stations in soft handover through back haul network). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify RANTA-AHO to include the teachings of TIEDEMANN, since TIEDEMANN states that such a modification would allow a system to predict changes of a load capacity and optimize base station operations based on these predictions (see paragraph 4). Furthermore, providing resources to a newly added device at a base station would inherently change the amount of resources available to current devices, and therefore would affect the base stations scheduling of additional resources. However, the combination of RANTA-AHO and TIEDEMANN does not expressly disclose wherein the channel is an enhanced uplink dedicated channel. The examiner takes Official Notice that the use of an enhanced uplink dedicated channel is well known and conventional in the art and would allow transmission of data using known and standardized technologies. Furthermore, as both an uplink channel (as described in the combination of RANTA-AHO and TIEDEMANN) and an enhanced uplink channel provide data between a mobile terminal and base station, the use of any uplink channel would be design choice based on system needs.

Regarding claim 39, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses further comprising the step of signaling by said at least one scheduling base station the determined scheduling information to the mobile

terminal in soft handover to allocate the maximum amount of uplink resources to the mobile terminal for uplink data transmissions on the E-DCH (RANTA-AHO - paragraph 29, 30).

Regarding claim 40, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the maximum amount of uplink resources used for uplink data transmissions on the E-DCH indicates the maximum data rate or the maximum uplink transmission power ratio that may be used by the mobile terminal for uplink transmissions using the E-DCH (RANTA-AHO - paragraph 30).

Regarding claim 41, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the at least one scheduling base station schedules uplink data transmissions by controlling the TFCS available to the mobile terminal in soft handover for uplink data transmission or by controlling the uplink transmission power ratio of the mobile terminal (RANTA-AHO - Figure 1; paragraph 3, 32).

Regarding claim 44, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the indicated mobile terminal's maximum amount of uplink resources for uplink data transmissions on the E-DCH is transported using control signaling (RANTA-AHO - paragraph 30; scheduling command).

Regarding claim 45, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN discloses wherein the scheduling base station determines, signals and indicates the mobile terminal's allocated maximum amount of uplink resources for uplink data transmissions on the E-DCH for the mobile terminal in soft handover each time the mobile terminal in soft handover is scheduled (RANTA- AHO - paragraph 34; control base stations indicates scheduling during handover).

Regarding claim 48, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of The combination of RANTA-AHO and TIEDEMANN further discloses wherein the plurality of base stations defines the active set of the mobile terminals in soft handover and wherein the method further comprises the steps of adding a base station to the active set of the mobile terminals and signaling the applicability of allocated amount of uplink resources for uplink data transmissions on the E-DCH for the mobile terminal in soft handover to said added base station by the serving radio network controller [**controller**] (TIEDEMANN - paragraph 38, 39, 44; active set of the mobile terminal based on sufficient signal measurements. Since measurements are provided to base stations in active set, newly added base stations would be provided resource information.

Regarding claim 49, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of The combination of RANTA-AHO and TIEDEMANN further discloses wherein information for signaling of the mobile terminal's maximum amount of uplink resources for uplink data transmissions on the E-

DCH to said added base station is comprised within a message communicated during the active set update procedure (TIEDEMANN - paragraph 38, 39, 44; when active set is updated, resource information can be provide to non-active base station on list.).

Regarding claim 50, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein one base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover to all base stations of said plurality of base stations (RANTA-AHO - paragraph 31; controlling scheduling cell controls the uplink data rate).

Regarding claim 51, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN discloses wherein each of said base stations schedules uplink data transmissions of the mobile terminal in soft handover to the respective one of said plurality of base stations (TIEDEMANN - abstract; uplink resources controlled by each base station). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify RANTA-AHO to include the teachings of TIEDEMANN, since TIEDEMANN states that such a modification would improve efficiency of the system by reducing delays caused by communication with a central controller (see abstract).

Regarding claim 52, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein each of the plurality of base stations determines

scheduling information for the mobile terminal indicative of an allocated maximum amount of uplink resources for uplink data transmission on the E-DCH allocated to the mobile terminal by the respective base station (TIEDEMANN - abstract), and signals the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of uplink resources for uplink data transmissions using the E-DCH to the terminal for uplink data transmission to the respective base station (RANTA-AHO - paragraph 29, 30).

Regarding claim 53, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses choosing by a mobile terminal the lowest assigned maximum amount of uplink resources for uplink data transmission using the E-DCH for uplink transmissions to all base stations of the plurality of base stations (paragraph 29, 30; lowest assigned maximum corresponds to maximum uplink rate).

Regarding claim 54, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses further comprising the step of forming by the mobile terminal a combined maximum amount of uplink resources on the assigned maximum amounts of uplink resources for uplink data transmissions using the E-DCH, which is used by the mobile terminal for uplink transmissions to all base stations of the plurality of base stations (paragraph 29, 30; maximum uplink rate set by the controlling Node B).

Regarding claim 59, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and

TIEDEMANN further discloses wherein the maximum allocated amount of uplink resources for uplink data transmissions on the E-DCH is signaled from a base station to the mobile terminal via a shared channel or a dedicated channel (TIEDEMANN – paragraph 27; forward link would inherently require a shared or dedicated channel for wireless transmission).

Regarding claim 61, RANTA-AHO teaches a mobile communication system communicating information relating to the scheduling of uplink data transmissions, wherein the communication system comprises: a mobile terminal [**UE device**] that uses a plurality of processes to transmit uplink data on a channel of a system to a plurality of base stations [**Node B**] during soft handover of the mobile terminal in the mobile communication system, and said plurality of base stations, wherein at least one scheduling base station of said plurality of base stations schedules uplink data transmissions of the mobile terminal in soft handover (abstract; paragraph 4; active node B provides scheduling of uplink data rate to the UE), wherein the at least one scheduling base station of said plurality of base stations determines scheduling information for the mobile terminal indicative of an allocated maximum amount of uplink resources used for uplink data transmission for the mobile terminal applicable to scheduled uplink data transmissions on the channel by the mobile stations and transmits scheduling information to inform the at least one other base station on the mobile terminal's allocated maximum amount of uplink resources for uplink transmissions on the channel (see paragraph 13, 14, 16; uplink data rate set at the mobile station. During soft handover, uplink data rate is of mobile terminal is

transmitted to the Node B from the mobile terminal by updating uplink data rate of target Node B including synchronization of pointer in UE and target Node B), and wherein the at least one other base station schedules at least one other mobile terminal in communication with a respective base station based on the scheduling information (paragraph 16, 19, 21; uplink resources are scheduled to the UE based on determined maximum uplink data rate). However, RANTA-AHO does not expressly disclose transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations; and scheduling at least one other mobile terminal in communication with a respective base station based on the information received from the at least one scheduling base station. In a similar field of endeavor, TIEDEMANN discloses transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations, and scheduling at least one other mobile terminal in communication with a respective base station based on the information received from the at least one scheduling base station (paragraph 31, 42, 93, 96; non serving base station schedules a plurality of mobile stations according to an expected load based on determined resources of mobile stations in soft handover). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify RANTA-AHO to include the teachings of TIEDEMANN, since TIEDEMANN states that such a modification would allow a system to predict changes of a load capacity and optimize base station operations based on these predictions (see paragraph 4). Furthermore, providing resources to a newly added device at a base station would inherently change the

amount of resources available to current devices, and therefore would affect the base stations scheduling of additional resources. However, the combination of RANTA-AHO and TIEDEMANN does not expressly disclose wherein the channel is an enhanced uplink dedicated channel. The examiner takes Official Notice that the use of an enhanced uplink dedicated channel is well known and conventional in the art and would allow transmission of data using known and standardized technologies. Furthermore, as both an uplink channel (as described in the combination of RANTA-AHO and TIEDEMANN) and an enhanced uplink channel provide data between a mobile terminal and base station, the use of any uplink channel would be design choice based on system needs. However, RANTA-AHO does not expressly disclose transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations; and wherein the scheduling is based on the information received from the scheduling base station. In a similar field of endeavor, TIEDEMANN discloses transmitting from at least one scheduling base station information to at least one other base station of said plurality of base stations (paragraph 16, 19, 21, 22; serving base station calculates an expected coupled load at the non-serving base station based on the coupled load indicator and a mobile station transmission parameter such as a scheduled transmission data rate. The expected coupled load is forwarded to the non-serving base station), and wherein the scheduling is based on the information received from the scheduling base station (paragraph 31, 42, 93, 96; non serving base station schedules a plurality of mobile stations according to an expected load based on determined reverse link resources of mobile stations in soft handover through back haul

network). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify RANTA-AHO to include the teachings of TIEDEMANN, since TIEDEMANN states that such a modification would allow a system to predict changes of a load capacity and optimize base station operations based on these predictions (see paragraph 4). Furthermore, providing resources to a newly added device at a base station would inherently change the amount of resources available to current devices, and therefore would affect the base stations scheduling of additional resources. However, the combination of RANTA-AHO and TIEDEMANN does not expressly disclose wherein the channel is an enhanced uplink dedicated channel. The examiner takes Official Notice that the use of an enhanced uplink dedicated channel is well known and conventional in the art and would allow transmission of data using known and standardized technologies. Furthermore, as both an uplink channel (as described in the combination of RANTA-AHO and TIEDEMANN) and an enhanced uplink channel provide data between a mobile terminal and base station, the use of any uplink channel would be design choice based on system needs.

Regarding claim 62, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the at least one scheduling base station transmits the determined scheduling information to the mobile terminal in soft handover to allocate the maximum amount of uplink resources for uplink data transmissions on the E-DCH to the mobile terminal (RANTA-AHO - paragraph 29, 30).

Regarding claim 63, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the other base stations of said plurality of base stations schedule at least one other mobile terminal in communication with a respective base station taking into account the indicated mobile terminal's allocated maximum amount of uplink resources of uplink data transmissions on the E-DCH for said mobile terminal in soft handover (TIEDEMAN - paragraph 93, 96).

5. Claims 42, 43, 58 are rejected under 35 U.S.C. 103(a) as being unpatentable over RANTA-AHO et al (US 2005/0048975) in view of TIEDEMANN et al (US 2005/0037771 A1) and further in view of LEGG (6,414,947).

Regarding claim 42, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN further discloses wherein the scheduling information indicating the mobile terminal's maximum amount of uplink resources for uplink data transmission on the E-DCH comprises: signaling the mobile terminal's maximum amount of resources from the at least one scheduling base and informing the mobile terminal's maximum amount of uplink resources for uplink transmissions on the E-DCH to the other base stations (RANTA-AHO – paragraph 29, 30). However, the combination of RANTA-AHO and TIEDEMANN does not expressly disclose wherein the mobile terminal's maximum amount of uplink resources is transported via a resource network controller controlling radio resources of the mobile terminal in soft handover. In the same field of endeavor, LEGG discloses wherein an indicated allocated amount of uplink resources is

transported via an radio network controller controlling radio resources of the mobile terminal in soft handover, and wherein indicating the allocated amount of uplink resources comprises the steps of: signaling the allocated maximum amount of resources from the at least one scheduling base station to a network entity controlling radio resources of said mobile terminal in soft handover, and forwarding the allocated maximum amount of resources to the other base stations by the radio resource controlling entity (col. 5, line 55-60; col. 6,line 15-34; resources allocated for a mobile in soft handover using associated cell determination information forwarded from the network controller). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of RANTA-AHO and TIEDEMANN to include the teachings of LEGG, since the use of a network controller provides various configuration processing and coordination between various network elements and would allow control functions to be implemented between connected network elements.

Regarding claim 43, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO, TIEDEMANN, and LEGG further discloses wherein the serving radio network controller determines whether to forward the applicability of allocated maximum amount of uplink resources for uplink data transmissions on the E-DCH to a respective one of said other base stations based on the cell interference within the radio cell controlled by the respective one of said other base stations (TIEDEMANN - paragraph 38, 39, 44; TIEDEMANN describes forwarding of information based on an Active base station set of the mobile

station which is formed using signal strength indicators (i.e. interference), while LEGG teaches forwarding of information using a radio network entity).

Regarding claim 58, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, the combination of RANTA-AHO and TIEDEMANN does not expressly disclose further comprising requesting by a serving radio network controller from at least one base station of said plurality of base station to signal the mobile terminal's allocated maximum amount of uplink resources for uplink data transmissions to said serving radio network controller. In a similar field of endeavor, LEGG teaches requesting by a Radio Network Controller controlling the radio resources of a mobile terminal in soft handover from at least one base station of a plurality of base station to signal the maximum amount of resources allocated to the mobile terminal in soft handover to said Radio Network Controller (col. 5, line 55-60; col. 6,line 15-34; resources allocated for a mobile in soft handover using associated cell determination information forwarded from the network controller). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of RANTA-AHO and TIEDEMANN to include the teachings of LEGG, since the use of a network controller provides various configuration processing and coordination between various network elements and would allow control functions to be implemented between connected network elements.

6. Claim 75 is rejected under 35 U.S.C. 103(a) as being unpatentable over RANTA-AHO et al (US 2005/0048975) in view of TIEDEMANN et al (US 2005/0037771 A1) and further in view of LOVE (US 2004/0219920).

Regarding claim 75, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. The combination of RANTA-AHO and TIEDEMANN, does not expressly disclose wherein the uplink maximum transmission power ratio is a maximum power ratio of a data channel to a control channel for uplink transmissions. In a similar field of endeavor, LOVE discloses wherein an uplink maximum transmission power ratio is a maximum power ratio of a data channel to a control channel for uplink transmissions (paragraph 50, 51). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the to include the teachings of combination of RANTA-AHO and TIEDEMANN to include the teachings of LOVE since such a modification would allow a system to maintain interference levels by reducing power based on a signal to noise ratio.

Allowable Subject Matter

7. Claims 46, 47, 55-57 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ARIEL BALAOING whose telephone number is (571)272-7317. The examiner can normally be reached on Monday-Friday from 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dwayne Bost can be reached on (571) 272-7023. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ariel Balaoing/
Primary Examiner, Art Unit 2617